MASTER OF SCIENCE
IN
DEFENSE ANALYSIS

ARTIFICIAL INTELLIGENCE AND FOREIGN POLICY DECISION-MAKING

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With the advent of a global information society, the U.S. will seek to tap the potential of advanced computing capability to enhance its ability to conduct foreign policy decision-making. This thesis explores the potential for improving individual and organizational decision-making capabilities by means of artificial intelligence (AI). The use of AI will allow us to take advantage of the plethora of information available to obtain an edge over potential adversaries. Another purpose of this thesis is to give guidance to the software community as to what policymakers will need in order to improve future decision-making processes. The third purpose is to encourage government and private sector decision-makers to allocate adequate resources to actualize the potential of AI. The method of analysis this thesis uses is to examine U.S. foreign policy decision-making on the cognitive or individual, group, and organizational levels. Using the Cuban Missile Crisis and the Yom Kippur War as test beds for critical analysis, identification of both decision enhancing and impeding functions is accomplished. Finally, a counterfactual analytic framework, using an AI model, tests the likely influence of AI on decision-making. The results substantiate the value of AI as both a decision-making enhancer and an impediment reducer for the policymaker. Additional conclusions are derived that improve the decision-making system and its processes by means of introducing an AI capability.

KEYWORDS: Artificial Intelligence, Foreign Policy, Cuban Missile Crisis, Yom Kippur War, Decision-Making, Cognitive Theory, Group Dynamics, Organizational Theory, Bureaucratic Politics, Decision Modeling, Decision-Making

DoD KEY TECHNOLOGY AREAS: Command, Control, and Communications, Computing and Software, Modeling and Simulation

POACHING AND COUNTERPOACHING IN SUB-SAHARAN AFRICA:
A STRATEGY FOR ENGAGEMENT, DEVELOPMENT, AND PROTECTION

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The purpose of this thesis is to define the poaching problem in sub-Saharan Africa, to provide for the development of solutions, and to illustrate the significance of the problem to both Africa and the United States. This objective is achieved by illustrating the similarities between poaching and insurgency, developing a typology for the classification of different forms

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of poaching, and applying an insurgency/counterinsurgency model to these scenarios. Additionally, by addressing the negative effects poaching has on economic, political, and social issues we demonstrate that poaching is a problem that extends beyond the loss of selected animal species.

Through the application of our model to actual cases of poaching, we demonstrate the utility of drawing upon insurgency theory for providing solutions to the poaching problem. As a result, this thesis offers an atypical approach for systematically conceptualizing and implementing effective counterpoaching strategies. After developing a framework for analytically thinking about the poaching problem, we make recommendations regarding the role of specific U.S. forces within a comprehensive strategy of engagement. Finally, we comment on the importance of defining strategies whose methods of implementation are aligned with the desires, limitations, and capabilities of the host nation.

KEYWORDS: Environmental Security, Counterinsurgency, SOF Missions Wildlife Poaching

DoD KEY TECHNOLOGY AREAS: Other (Environmental Security, Counterinsurgency, SOF Missions)

STUDY OF A STORM: AN ANALYSIS OF ZAPATISTA PROPAGANDA

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The beginning hours of 1994 rang in both the New Year and the Zapatista uprising in Chiapas. Although in existence since 1983, the Zapatista movement was relatively unknown to the rest of the world until *Subcomandante* Marcos' propaganda offensive against the Mexican government. Steeped in historical references to indigenous exploitation and Emiliano Zapata, the Zapatista's call to arms and governmental reformation has continued to make effective use of symbols and rituals, reshaping the images of Indianness and economic suffering within Chiapas. The organization continues to garner support abroad as well as within Mexico through the use of the Internet, public media, and effective appropriation of nationalist symbols. What marks the Zapatista rebellion as extraordinary is its emergence as one of the first information age insurgencies to make such efficient use of these mediums.

This study presents a framework for analyzing propaganda, drawing from the fields of symbolic politics, cultural anthropology, and marketing. This symbolic frame is then applied to the Zapatistas in order to better understand the entire movement. The propaganda goals of the organization are examined, specifically addressing the areas of legitimacy, member unification, support both outside and within Mexico, recruitment, and challenges presented to the government.

KEYWORDS: Propaganda, Zapatistas, Ejercito Zapatista de Liberacion Nacional (EZLN), Symbology, Mexico, Target Audiences, Insurgency, Rebellion

DoD KEY TECHNOLOGY AREA: Other (Psychological Operations/Special Operations)

ISRAELI NUCLEAR WEAPONS AND WAR IN THE MIDDLE EAST

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This thesis examines the influence of the Israeli nuclear weapons capability on conflict in the Middle East. There are two perspectives regarding the impact of nuclear proliferation on strategic stability. Three paths to strategic instability are examined: preventive attacks, preemptive attacks, and the escalation of conventional conflict to nuclear war. The optimis-

tic perspective argues that nuclear weapons make preventive and preemptive attacks less likely, and keep conventional conflict from escalating to nuclear war. The pessimistic perspective argues the opposite—that nuclear weapons make preventive and preemptive attacks more likely, and raise the likelihood of escalation to nuclear war. My analysis of the Israeli cases shows that "opaque" nuclear proliferation decreases the pressure for preventive attacks, increases the chances for miscalculation, and creates sufficient concern about nuclear weapons to reduce the likelihood of preemptive attacks. Two factors help reduce the risk of nuclear proliferation as posed by proliferation pessimists, opaque nuclear weapons programs and nondeclaratory nuclear weapons policies. The implication of this research is that if the United States cannot dissuade a country from going nuclear, it should reinforce its incentives to maintain opacity and a nondeclaratory policy. Particular attention should be given to states which resist these efforts, as they represent the greatest risk of nuclear weapons use.

KEYWORDS: Israel, Nuclear Proliferation, Arab-Israeli Conflict, National Security Affairs

DoD KEY TECHNOLOGY AREA: Other (Nuclear Weapons)

LOW-END SOLUTIONS TO THE UNDERGROUND DILEMMA

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Both the 1981 Israeli Raid on the Osirak nuclear reactor in Iraq and the Gulf War, served notice to would-be proliferators that, in order to survive in the face of the conventional superiority of the United States and its allies, means must be developed to protect those assets deemed valuable or strategic in nature. Many would-be proliferators have chosen to develop underground structures, referred to as hardened and deeply buried targets (HDBT), as the preferred means to protect and hide their efforts to obtain weapons of mass destruction (WMD). To counter this trend, the U.S. relies almost entirely upon a policy of negotiated peacetime elimination or reduction of WMD/HDBT through diplomatic channels. Yet, if these efforts fail and the necessity for preemption or prevention emerges, instead of immediately relying on direct force alternatives, an indirect low-level interdiction method may be both more appropriate and available.

This thesis explores an alternative means by which the vulnerabilities of HDBT/WMD sites may be exploited through the use of low-level, indirect, counter-force strategies. This exploration of alternative HDBT interdiction approaches concludes that low-level counterforce strategies can complement existing counterproliferation initiatives, when employed as components of an overall campaign designed to deny and disrupt a would-be proliferator's progress.

KEYWORDS: Counterproliferation, Hardened and Deeply Buried Targets (HDBT)

DoD KEY TECHNOLOGY AREA: Other (Weapons of Mass Destruction)

GREAT POWERS, WEAK STATES, AND ASYMMETRIC STRATEGIES

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On the verge of the twenty-first century, America finds itself in the position of a great power with dominant military technology. This thesis examines the possibility that weaker states may be able to strategically innovate and defeat us in war despite our technological advantages. The purpose of the thesis is to survey what type of strategic innovations, also known as asymmetric strategies, are possible and to examine the conditions under which they may be successful.

This thesis begins by defining asymmetric strategies using a comprehensive model of strategy developed by Rear Admiral J.C. Wylie. The thesis also examines four variables which may explain the success or failure of asymmetric strategies. To illustrate possible asymmetric strategies and examine the contextual conditions under which they work, the thesis considers the cases of the Italo-Ethiopian war of 1935-36, the Russo-Finnish War of 1939-40, and the American-North Vietnamese War of 1965-73. The thesis finds that the four variables have significant explanatory power for the success or failure of these strategies. The thesis concludes by examining strategic implications for the United States, both as a possible opponent of weak states and as a supporter of a weak state faced by a great power threat.

KEYWORDS: Strategy, Strategic Innovation, Asymmetric Conflict and Military Technology, Future Wars, Italo-Ethiopian War, Russo-Finnish War, Vietnam

DoD KEY TECHNOLOGY AREAS: Battlespace Environments, Conventional Weapons, Other (Strategy)

GOLD, NOT PURPLE: LESSONS FROM USAID-USMILGP COOPERATION IN EL SALVADOR, 1980-1992

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The United States faces a continuing need to conduct interagency operations, especially between the military and USAID. Surprisingly, however, this field has been treated much too casually in light of its merits as a potential force multiplier—and as a source of serious operational problems. U.S. leaders will continue to choose the interagency approach (over unilateral options) to solve the sorts of complex problems that demand action and systematic intervention, yet allow room for political maneuver. By studying the activities of two inherently adversarial bureaucracies (USAID and the USMILGP) which needed to work together to solve a complex counterinsurgency problem in El Salvador, I have been able to determine which factors are most important for unity of effort in future interagency operations. In El Salvador the mission was to combat insurgents, but the principles and requirements of interagency cooperation apply today for combating terrorism, narcotics trafficking, insurgencies, and other post-Cold War security threats.

KEYWORDS: Interagency Operations, Cross-agency Operations, El Salvador, Special Operations, USAID, USMILGP, Counterinsurgency, Determinants of Unity of Effort, Interagency Cooperation

DoD KEY TECHNOLOGY AREA: Other (Interagency Operations)

MASTER OF SCIENCE IN DEFENSE ANALYSIS

THE ARSENAL SHIP CONCEPT: VULNERABILITIES TO SPECIAL OPERATIONS

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The United States Navy has solicited proposals for a revolutionary class of ship, the Arsenal Ship. Despite reduced funding for the project, the concept is still viable for future development. We show how the development of a new unparalleled weapons system or platform will evoke a response by potential adversaries, based on capabilities and asset investment, by unconventional means. The Arsenal Ship is a formidable threat, yet is vulnerable relative to other high value units. These reasons make it an inviting target across the spectrum of conflict. This thesis will describe threats that are usually overlooked and examine the Arsenal Ship's vulnerability to them. In addition, we will show how these vulnerabilities arise as the Arsenal Ship operates through the range of geographic areas. Further, this thesis describes possible strategic and tactical defensive actions to enable the Arsenal Ship to counter these unconventional threats. Each recommended action has a direct implication upon the engineered design and the proposed Concept of Operations (CONOP). In addition, the recommendations will influence the strategy for employing any future platform based on the Arsenal Ship concept, anywhere in the world.

KEYWORDS: Arsenal Ship, ARSHIP, Maritime Special Operations, Special Operations, Combat Swimmer, VBSS, Visit Board Search and Seize, Unconventional Warfare.

DoD KEY TECHNOLOGY AREAS: Battlespace Environments, Command, Control, and Communications, Conventional Weapons, Surface/Under Surface Vehicles -Ships and Watercraft.

NAVY SEALS: THEORY VS. REALITY

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The purpose of this thesis is to examine two books that advance alternate theories to explain the success or failure of special operations. The first book is *Perilous Options: Special Operations as an Instrument of U.S. Foreign Policy*, by Lucien S. Vandenbroucke. Vandenbroucke discusses recurrent problems with U.S. special operations and identifies what he believes are the causes of failure of such operations. The second book is *Spec Ops*, written by William H. McRaven. McRaven examines eight historic cases from around the globe and develops his theory on how to conduct successful special operations. From the analysis of three recent Navy SEAL's special operations missions, both theories seem to provide a useful tool for thinking about the failure or success of special operations. Combining these theories provides a complete framework for senior planners and tacticians in formulating a plan for successfully conducting future special operations missions.

KEYWORDS: SEALs, Urgent Fury, Just Cause, Desert Storm

DoD KEY TECHNOLOGY AREA: Other (Special Operations)

KOREAN UNIFICATION: A UNITED STATES ARMY SPECIAL FORCES FRAMEWORK FOR EMPLOYMENT

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As Korea approaches unification, the growing stability problems in the north create questions about how these problems can be approached to avoid destabilizing the peninsula upon unification. This thesis predicts and analyzes the significant stability and support operations likely to confront the Republic of Korea (ROK) Army during post-conflict or post-unification proceedings, and presents an employment framework for United States Army Special Forces (USASF) designed to support the ROK Army's efforts. The employment framework is designed to complement a theater-level strategic plan for conducting stability and support operations (SASO) in the north occurring along a suggested spectrum of unification possibilities. The framework consists of three elements: the SASO missions predicted, framework doctrinal elements, and four Korean unification scenarios. Doctrinal elements include the operations, missions, and unique roles USASF conduct during SASO. The utility of this thesis is the analysis of framework doctrinal elements in relation to the SASO missions and unification environment that may confront USASF while supporting the ROK Army in successful completion of these missions. The USASF employment framework is intended to be used as an aid for U.S. military planners at the strategic, operational and tactical levels during the deliberate planning process for post-conflict or post-unification operations in the north.

KEYWORDS: Korean Unification, United States Army Special Forces, Stability and Support Operations

DoD KEY TECHNOLOGY AREAS: Other (Force Employment and Stability, Support Operations)

JOINT TASK FORCE XXI: SPECIAL OPERATIONS FORCE (SOF) AS EXECUTIVE AGENCY IN MILITARY OPERATIONS OTHER THAN WAR

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While the U.S. military faces growing requirements to conduct Military Operations Other Than War (MOOTW), our command relationships are mired in the past, optimized for war, not MOOTW. General Purpose Forces are normally earmarked for Command and Control (C2) of these operations, with primarily conventional commanders, staffs, and service components establishing the Joint Task Force (JTF). Special Operations Forces (SOF) support the JTF. However, given the capabilities of SOF, this command relationship does not take advantage of SOF's strengths, and at times actually impedes our overall efforts.

SOF can provide the regional CINC with superior multi-echelon C2 in MOOTW. This thesis will demonstrate that the current U.S. military C2 system is unsuitable, and that by changing it we will dramatically improve mission success probabilities, efficiency, and overall combat effectiveness. This thesis examines U.S. operations in Somalia (Restore Hope) in order to shed light on key areas of sub-optimization. A SOF-based organization (JTF-XXI) will be proposed and compared to the Restore Hope JTF. The thesis will argue that the JTF-XXI is more effective and efficient, and should be adopted for future use.

KEYWORDS: Command and Control, Military Operations Other Than War, Special Operations, Somalia

DoD KEY TECHNOLOGY AREA: Command, Control, and Communications

MASTER OF SCIENCE IN DEFENSE ANALYSIS

APPLICATIONS OF JOINT TACTICAL SIMULATION MODELING

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Advances in technology allow Computer Simulation Models (CSM) to be used as a powerful tool to aid military decision-makers. This thesis explores the usefulness of one of these models, the Joint Tactical Simulation (JTS). First, this thesis outlines the information and tasks required to run JTS, which will give the reader a basic understanding of the program and how much effort it requires. Next, it describes the scenario presented in this thesis by detailing the methodology of terrain development, listing the assets required and the mission concept employed. It concludes by discussing some of the advantages and disadvantages of JTS followed by a reevaluation of the simulation and its possible uses.

The concluding appendix is a tutorial that guides the reader through an amphibious assault modeled on the UNIX-based computer systems at the Naval Postgraduate School's (NPS) Secure Systems Technology Laboratory. It was designed to be accomplished in less than four hours and give the user an opportunity to run a simulation while conducting minimal interaction.

KEYWORDS: Joint Tactical Simulation, Naval Special Warfare, High Resolution Models

DoD TECHNOLOGY AREA: Modeling and Simulation